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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,525	11/09/2001	Lawrence Shore	4832A (CIP)	6099

7590

04/06/2004

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EXAMINER

LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



**UNITED STATES DEPARTMENT OF COMMERCE  
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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100355925

EXAMINER
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ART UNIT	PAPER NUMBER
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1754

DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.      | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-26 are pending in the application.

Of the above, claims \_\_\_\_\_ are withdrawn from consideration.

2. ☐ Claims \_\_\_\_\_ have been cancelled.

3. ☒ Claims 6-22 are allowed.

4. ☒ Claims 1-3, 5 and 23-26 are rejected.

5. ☒ Claims 4 are objected to.

6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

**EXAMINER'S ACTION**

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The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this

Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takamura et al. in view of Anderson et al. Takamura et al. disclose a method for the selective oxidation of carbon monoxide by employing a catalyst comprising copper and platinum on an alumina support. (see column 4, lines 4-38.) Takamura et al. disclose in Example 1 in column 7 that the amount of platinum in the catalyst is 0.5 weight percent. The difference between the process disclosed by Takamura et al., and that recited in applicant's claims 1-3 and 5, is that Takamura et al. do not disclose that a reducible metal oxide should be dispersed on the oxide support. Takamura et al. teach at column 4, lines 31-33 that as the catalyst supports, there may be suitably used those having a large surface area, such as alumina and silica. It would be obvious from such disclosure of Takamura et al. that supports other than alumina and silica could

be used in combination with such alumina and silica. Anderson et al. disclose a method for oxidizing carbon monoxide, and establish the equivalence between catalyst supports comprising silica or alumina, on the one hand, and silica/titania or alumina/titania, on the other. (See column 2, lines 58-63 of Anderson et al.) It would be prima facie obvious from Anderson et al. to include titania in combination with the silica or alumina support of Takamura et al., since Anderson et al. disclose the equivalence between alumina and alumina in combination with titania, and silica in combination with titania, and Takamura et al. suggest at column 4, lines 31-34 that any known or suitable catalyst supports may be employed. There is no evidence on record of unexpected results which would emanate from employing an alumina/titania or silica/titania support in the method of Takamura et al., as opposed to alumina or silica by itself. Such titania would inherently be "dispersed on the oxide support" of alumina or silica, as required by applicant's claim 1.

Claims 23-26 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification

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does not enable one of ordinary skill in the art to reduce the carbon monoxide concentration in a gas stream without employing a source of oxygen for the oxidation of carbon monoxide. The specification also does not enable one to remove carbon dioxide from a gas stream by the steps recited in claims 23-26, since the oxidation of carbon monoxide would produce carbon dioxide, rather than remove it.

Claims 23-26 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to whether these claims require the removal of carbon dioxide from a gas stream, since the preambles of claims 23 and 25 recite "a process for removing carbon dioxide from an input gas stream", but there are no positive process steps in the main body of the claims to require such removal. It is also indefinite as to whether these claims require the preferential oxidation of carbon monoxide, since the claims recite contacting the gas stream with a "preferential oxidation catalyst" but there is no recitation of a source of oxygen which would result in such oxidation.

Claim 4 is objected to as based on a rejected parent claim, and would be allowed if written in independent form.

Claims 6-22 are allowed.

Sobukawa et al. is made of record for disclosing a catalyst for the oxidation of carbon monoxide comprising copper, cerium oxide and a noble metal on an aluminum oxide support. (See column 7, line 62 - column 8, line 55.)

Upchurch et al. is made of record for disclosing a process for oxidizing carbon monoxide in the presence of a catalyst consisting essentially of a platinum group metal, a reducible metal oxide and silica or alumina.

Giacobbe et al. is made of record for disclosing a method for removing carbon monoxide from a feed gas stream comprising an inert gas by contacting the stream with a noble metal oxide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be

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obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WAL:cdc

April 1, 2004

*Wayne A. Langel*  
WAYNE A. LANGEL  
PRIMARY EXAMINER